

Serial No. 10/692,230
Election and Response
Reply to Restriction Requirement of July 8, 2004

AMENDMENTS TO THE CLAIMS

1-17. (Cancelled)

18. (Original) A memory device comprising:

a muxing device; and

at least one cluster device coupled to said muxing device.

19. (Previously Amended) The memory device of Claim 18, wherein said cluster device is adapted to sink a tail current of at least one local sense amp contained in said cluster device.

20. (Currently Amended) The memory device of Claim 18, further comprising a plurality of local clusters devices having at least one common local wordline coupling all said plurality of clusters devices in a block.

21. (Previously Amended) The memory device of Claim 18, wherein said cluster device comprises at least one sense amp adapted to be activated by a global cluster line.

22-42. (Cancelled)

43. (New) The memory device of Claim 18, wherein said at least one cluster device comprises an array of local sense amplifiers.

44. (New) The memory device of Claim 43 wherein said array of local sense amplifiers comprises four pairs of bitline multiplexers.

45. (New) The memory device of Claim 44 wherein each bitline multiplexer connects at least one bitline pair to a global bitline.

46. (New) The memory device of Claim 18, wherein said cluster device is a self-timed local element interfacing with at least said muxing device.

47. (New) The memory device of Claim 20 wherein at least one of said plurality of cluster devices comprises an array of local sense amplifiers.

48. (New) The memory device of Claim 47, wherein at least one of said plurality of cluster devices is adapted to sink a tail current of all said local sense amplifiers contained in said at least one cluster device.

49. (New) The memory device of Claim 18 comprising at least one global cluster line and at least one local cluster line.

50. (New) The memory device of Claim 49 wherein at least one local cluster line is coupled to at least one local sense amplifier in said at least one cluster device.

51. (New) A memory device comprising:
a plurality of muxing devices;
a plurality of cluster devices interfacing with at least one of said plurality of muxing devices; and
at least one common local wordline coupling said plurality of cluster devices in a block.

52. (New) The memory device of Claim 51, wherein at least one of said plurality of cluster devices is adapted to sink a tail current of at least one local sense amplifier contained in said at least one of said plurality of cluster devices.

53. (New) The memory device of Claim 51, wherein each of said plurality of cluster devices comprises at least one sense amplifier adapted to be activated by a global cluster line.

54. (New) The memory device of Claim 51, wherein at least one of said plurality of cluster devices comprises an array of local sense amplifiers.

55. (New) The memory device of Claim 54 wherein said array of local sense amplifiers comprises four pairs of bitline multiplexers.

56. (New) The memory device of Claim 55 wherein each bitline multiplexer connects at least one bitline pair to a global bitline.

57. (New) The memory device of Claim 56, wherein at least one of said plurality of cluster devices comprises a self-timed local element interfacing with at least one of said plurality of muxing devices.

58. (New) A method of performing at least one of a read and write operation in a memory device comprising:

activating at least one cluster device coupled to at least one muxing device in the memory device; and

firing at least one sense amplifier in said at least one cluster device.

59. (New) The method of Claim 58 comprising activating at least one global cluster line prior to the at least one of a read and write operation.

60. (New) The method of Claim 59 comprising using at external interface to activate said global cluster line.

61. (New) The method of Claim 58 comprising sinking a tail current of at least one local sense amp contained in said cluster device.

62. (New) The method of Claim 58 comprising firing a plurality of sense amplifiers in at least one of said plurality of cluster devices.

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AMENDMENTS TO THE DRAWINGS

The attached two sheets of drawings include changes to Fig. 7. The sheet labeled Replacement Sheet replaces the original sheet including Fig. 7. The sheet labeled Annotated Sheet Showing Changes indicates that, in Fig. 7, the reference number 722 for the LSA is changed to 712.

Attachment: Replacement Sheet

Annotated Sheet Showing Changes